

App. No. 10/047,024

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Amendment/Response

Reply to non-Final Office action of 18 May 2005

#### REMARKS/DISCUSSION OF ISSUES

Claims 1-11 are pending in the application. Claims 1-11 are rejected.

Claim 11 has been objected to as lacking a period. The claim is currently amended to correct this error.

Claims 1-11 are rejected under 35 USC 102(e) as being anticipated by, or in the alternative, under 35 USC 103(a) as being unpatentable over Philipp et al. U.S. patent 4,746,366 (herein 'Philipp').

Philipp discloses a process for the production of scratch-resistant lacquer coatings, in which a lacquer which has been obtained by hydrolytic polycondensation of at least one titanium or zirconium compound, at least one organofunctional silane and, if appropriate, at least one inorganic oxide component is applied to a substrate and the resulting coating is hardened by heating.

To prepare the lacquer, the starting components are precondensed in the desired mixing ratio with a smaller amount of water than the stoichiometrically required amount for complete hydrolysis of all the hydrolyzable groups employed. This sub-stoichiometric amount of water is preferably metered in such a way that local excessive concentrations are avoided. This is effected, for example, by introducing the amount of water into the reaction mixture with the aid of adsorbents laden with moisture, for example silica gel ... (col. 3, lines 46-55).

The silica gel is then filtered off (col. 6, lines 13 and 29; col. 7, lines 9 and 29). Thus, silica gel is used as a reaction aid in the precondensing step, and is subsequently

removed prior to coating a substrate with the lacquer composition. In contrast, claim 1 calls for producing a lacquer composition containing silica particles.

In order to make this distinction more clear, claim 1 is currently amended to specify that the method results in a lacquer composition containing silica particles.

In applying Philipp, the Examiner has pointed out that in both examples 6 and 7, the precondensation is carried out in the presence of silica gel under basic conditions. This is acknowledged. However, in both examples 2 and 3@, the precondensation is carried out in the presence of silica gel under acidic conditions. Furthermore, there is no teaching or suggestion regarding the preference of either acidic or basic conditions.

Thus, Philipp is similar to previously cited JSR in that no guidance is provided to the skilled artisan which would lead to the choice of basic conditions over acidic conditions.

Furthermore, as already pointed out, Philipp removes the silica gel from the composition before use.

The Examiner has also pointed out that Philipp teaches the addition of conventional lacquer additives including fillers. As examples, Philipp lists organic diluents, flow control agents, colorants (dyestuffs or pigments), UV stabilizers, fillers, viscosity regulators or oxidation inhibitors (see col. 5, lines 1-3). However, silica particles are not mentioned.

Since Philipp uses silica gel only as a reaction aid in the precondensation step, that it is used under both acidic and basic conditions, and that it is subsequently removed from the reaction mixture prior to formation of the lacquer composition, Philipp neither anticipates under Section 102 nor renders obvious under Section 103 Applicant's claims.

Accordingly, the Section 102 and 103 rejections of claims 1-11 over Philipp are both in error and should be withdrawn.

Claims 1-6 and 8-11 are rejected under 35 USC 103(a) as being unpatentable over previously cited JSR in view of Philipp.

The Examiner has stated that JSR differs from Applicant's claims in the characterization of the pH as basic, and cites Philipp as teaching reaction under basic conditions with silica, citing examples 6 and 7.

As already pointed out above, while Philipp discloses reaction under basic conditions, he also discloses reaction under acidic conditions, and provides no indication that basic conditions are in any way preferred. Moreover, Philipp removes the silica after the precondensation reaction, and therefore does not teach or suggest a lacquer composition containing silica.

The Examiner has also stated that Philipp also discloses the use of a basic condensation catalyst, citing col. 4, lines 3-16 of the reference.

This passage states:

Suitable condensation catalysts are compounds which split off protons or hydroxyl ions, and amines. Specific examples are organic or inorganic acids, such as hydrochloric acid, sulfuric acid, phosphoric acid, formic acid or acetic acid, and organic or inorganic bases, such as ammonia, alkali metal or alkaline earth metal hydroxides, for example sodium hydroxide, potassium hydroxide or calcium hydroxide, and amines which are soluble in the reaction medium, for example lower alkylamines or alkanolamines.

Thus, like JSR, Philipp teaches that both acidic and basic materials are suitable catalysts, and provides no teaching or suggestion that basic conditions are to be used to the exclusion of acidic conditions.

Moreover, in discussing starting compounds, Philipp states at col. 3, lines 30-42:

Compounds which are soluble in the reaction medium and form difficultly volatile oxides are, for example, inorganic acids, such as phosphoric acid and boric acid, and esters thereof. Examples of further suitable compounds are halides, such as  $\text{SiCl}_4$ ,  $\text{HSiCl}_3$ ,  $\text{SnCl}_4$  and  $\text{PCl}_5$ , and alkoxides, such as  $\text{NaOR}$ ,  $\text{KOR}$ ,  $\text{Ca(OR)}_2$ ,  $\text{Al(OR)}_3$ ,  $\text{Si(OR)}_4$ ,  $\text{Sn(OR)}_4$  and  $\text{VO(OR)}_3$ , wherein R is derived from lower alcohols, such as methanol, ethanol, propanol or butanol. Further starting compounds which can be used are corresponding salts with volatile acids, for example acetates, such as silicon tetraacetate, basic acetates, such as basic lead acetate, and formates.

Thus, like JSR, Philipp mentions alkoxides in a long list of starting compounds, but teaches that both acidic and basic materials are suitable, and provides no teaching or suggestion that alkoxides under basic conditions are to be used to the exclusion of other materials, whether under basic or acidic or neutral conditions.

Thus, one skilled in the art could just as readily select an acidic compound as a basic compound, which would be in direct conflict with Applicant's teachings and claims, which call for the use of alkoxides under basic conditions.

Thus, it would not have been obvious to one skilled in the art to select an alkoxide, or even a basic compound, or a compound capable of producing basic conditions.

Such basic conditions are essential to achieving a lacquer composition having acceptable properties when silica particles are present. As explained in the third paragraph on page 2 of Applicant's specification:

The benefit of the method according to the present invention especially applies for lacquer compositions to which silica particles are added in order to provide for increased

strength and reduced shrinkage. As the iso-electric point of silica is 2, and therefore the silica particles are electrically neutral at pH 2, a poor stabilization of silica particles is obtained at said pH. Under more basic conditions the particles are negatively charged resulting in improved stability and reduced tendency towards flocculation. Therefore, upon curing of such basic lacquer improved packing of the particles is obtained with better properties of the final coating.

Neither JSR nor Philipp teaches anything in this regard. Thus, there is no guidance to the skilled artisan to maintain basic conditions in order to avoid flocculation of silica particles.

Accordingly, the rejection of claims 1-6 and 8-11 under 35 USC 103(a) over JSR in view of Philipp is in error and should be withdrawn.

Claims 1-11 are rejected under 35 USC 103(a) over previously cited Philips in view of JSR and Philipp.

Philips teaches lacquer compositions prepared by treating an organosilane compound with water in the presence of a polycarboxylic acid. See page 2, line 15.

In teaching the use of an acid catalyst, Philips is in direct conflict with Applicant's claims. Moreover, since neither JSR nor Philipp provides any guidance regarding preference of basic conditions over acidic or neutral conditions, the combination of Philips with JSR and Philipp would lead the skilled artisan to the use of an acidic catalyst, as taught by Philips, in direct conflict with Applicant's claims.

As already pointed out above, Applicant's contribution to the art of lacquer compositions is that when silica particles are added to an organosilane composition, flocculation of the


particles can be prevented by carrying out the reaction under basic conditions.

Neither Philips nor JSR nor Philipp in any way recognizes the problem of flocculation of silica particles in a lacquer composition, and so none of them teaches or suggests a solution to the problem. In fact, JSR and Philipp both fail to provide any guidance regarding the selection of a catalyst, and Philips specifically teaches away from the selection of a basic catalyst by requiring an acid catalyst.

Accordingly, the rejection of claims 1-11 under 35 USC 103(a) over Philips in view of JSR and Philipp is in error and should be withdrawn.

In view of the foregoing arguments and amendments, Applicant urges that all of the pending claims are allowable, and respectfully requests that the Examiner withdraw all of the rejection of record, allow all the pending claims as currently amended, and find the application to be in condition for allowance.

Respectfully submitted,

  
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